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Message from the Astrophysics Division Director

As astrophysicists, we are fortunate that our most compelling science questions – how does the universe work, how did the familiar sky of galaxies and stars come to be, are we alone – resonate with the American public and Government policy makers who support us. At this time, we are poised to answer these questions scientifically using the suite of large and small space-based observatories spanning the electromagnetic spectrum.

As I described during the Astrophysics Subcommittee meeting on March 26, 2014, we have made progress towards addressing the priorities of the 2010 Decadal Survey for Astronomy and Astrophysics. The appropriation that NASA Astrophysics received for FY14 and the President's FY15 budget request both support our plans for continued progress. The progress we are making toward the major recommendations of the 2010 Decadal Survey are:

- Preformulation and focused technology development for a 2.4m version of the Wide-Field Infrared Survey Telescope (WFIRST), a mission concept referred to as the Astrophysics Focused Telescope Assets (AFTA), are underway. NASA received $56M in directed funding for in FY 2014 for WFIRST/AFTA to continue preformulation activities and technology development. The President's FY15 budget request proposes to continue this progress with funding in FY 2015, and notional funding plans for FY 2016 and beyond, to enable a new start when funding becomes available as the James Webb Space Telescope approaches launch, no earlier than FY 2017. A National Research Council study, released March 2014, endorsed the WFIRST/AFTA mission concept and provided NASA with recommendations on managing the technical and cost risk associated with the use of the 2.4m telescope assets and the immature coronagraph technology. The NRC report is available at http://www.nap.edu/catalog.php?record_id=18712, and reports from the Science Definition Team and other WFIRST information is available at http://wfirst.gsfc.nasa.gov/.
- The President's FY 2015 budget request includes augmentation to the Explorer program to enable more frequent flight opportunities, including a planned SMEX AO later this year (see the community announcement at http://explorers.larc.nasa.gov/APSMEX/). The notional funding plans for FY 2016 and beyond support the four AOs per decade that were recommended by the 2010 Decadal Survey.
- Strategic technology investments are being made and partnerships are being discussed with the European Space Agency in their gravitational wave and X-ray observatories.
- Strategic technology investments are being made to advance the medium scale programs including technology for exoplanet missions and technology for detection of polarization of the cosmic microwave background.
- Modest augmentations have been made to small programs including the selection of six Theory and Computation Networks (co-funded by NSF).

A goal of the Astrophysics Division is to be prepared to start a new strategic NASA Astrophysics mission to follow JWST as soon as funding becomes available, while continuing to advance Decadal Survey science during the interim.

The FY 2014 appropriations for NASA provides $658M for JWST and $668M for the rest of NASA astrophysics. The FY 2015 President's budget request provides $645M for JWST and $607M for the rest of NASA astrophysics. Both budgets support the continued development of JWST on plan toward its launch in 2018, and both budgets include funding for continued preformulation of WFIRST as described above. Both budgets also includes funding for several new missions including the Transiting Exoplanet Survey Satellite (TESS), the next Astrophysics Explorer mission, the Neutron Star Interior Explorer (NICER), the next Astrophysics Explorer Mission of Opportunity, and the NASA contribution to the European Space Agency's Euclid mission.

The FY 2015 President's budget request proposes placing SOFIA into storage due to its high operating cost and current constraints on the Federal domestic discretionary budget. NASA is working with current partner Germany to identify a path forward for SOFIA with greatly reduced NASA funding. Unless additional partners are able to support the U.S. portion of SOFIA costs, under this budget request NASA would place the aircraft into storage by FY 2015.

The FY 2014 appropriated budget does not included any restoration of funding for education, but it does direct SMD to continue conducting education activities and to consider consolidation at the Division level. For FY 2014, Astrophysics is consolidating its E/PO portfolio into four areas – Cosmic Origins managed by Space Telescope Science Institute, Physics of the Cosmos managed by Chandra X-ray Center, Exoplanet Exploration managed by the Jet Propulsion Laboratory, Airborne Astronomy Ambassadors managed by the SOFIA program. For FY 2015 SMD will assess its portfolio of education activities and competitively allocate funding to the highest priority education projects within NASA Science.

The major impacts of the October 2013 Government shutdown included the cancellation of the 2013-2014 Antarctic balloon campaign including three long duration balloon flights; the cancellation of nine SOFIA science flights and a delay in the beginning of Cycle 2; and delays in sending out research funding for those grantees whose awards were scheduled to start or be funded at the beginning of FY 2014.

Major activities planned for 2014 include the Astrophysics Senior Review of flight missions and release of a Small Explorer Announcement of Opportunity targeted for Fall 2014. A task force of the Astrophysics Subcommittee has completed a 30 year visionary roadmap, *Enduring Quests, Daring Visions*, to address enduring questions in Astrophysics.

My entire presentation to the Astrophysics Subcommittee will be available on http://science.nasa.gov/science-committee/subcommittees/nac-astrophysics-subcommittee/ . *Enduring Quests, Daring Visions*, is available at http://science.nasa.gov/astrophysics/documents/.

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